

An undescribed plumage character of the Irish Coal Tit *Parus ater hibernicus*

by Jon R. King

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The Irish Coal Tit *Parus ater hibernicus* was separated from the British population *Parus ater britannicus* Sharpe and Dresser, 1871, by Ogilvie-Grant (1910) (as *Parus hibernicus*). The Irish form is distinct in being suffused with yellow on the parts of the plumage that are white in *britannicus* with the nape and cheek patches usually wholly rich yellow, while the scapulars are rather more olive than buff (Cramp & Perrins 1993). There is some degree of intergradation of plumage between the two subspecies, birds from northeastern Ireland (Co. Down) being more or less inseparable from *britannicus*, whilst populations of the latter in southern Wales are yellower than elsewhere in Britain and approach *hibernicus* (Ogilvie-Grant 1910, Snow 1955, Cramp & Perrins 1993). Yapp (1963) analysed the frequency and distribution of these intermediate morphs, concluding that the two subspecies were inseparable, although this view is not widely followed (e.g. Vaurie 1959, Peters 1967, Cramp & Perrins 1993).

An extensive analysis of the plumage and biometry of all European specimens of *Parus ater* in the British Museum (Natural History), Tring, was undertaken in 1990. As part of a study of sexually dimorphic characters in this species, particular detail was paid to the area of blackish feathering of the chin and throat (herein known as the "bib") (King & Griffiths 1994). The range of variation in bib size and colouration deduced from previous handlings of wild-caught *britannicus* was confirmed by initial study of the skins. Five representative individuals of the observed size classes were photographed and used as standards for all subsequent comparisons, whilst the three principal colour types were classed using Smithe (1975) (see figure 1 and table 1 of King & Griffiths 1994). The bib size and colour of 137 *britannicus* and 58 *hibernicus* specimens (from throughout their respective ranges), that had been sexed by dissection, were recorded prior to examination of their labels (unsexed birds or those whose preparation made scoring of bib characters inaccurate were rejected from this analysis). Only individuals that had completed the post-juvenile moult were examined, and all were aged where possible according to the presence or absence of retained juvenile greater secondary coverts (Svensson 1992). In subsequent analyses, however, data for first-years and adults are lumped, as there was no significant age difference in bib characters from museum data (King & Griffiths 1994) and the age ratios of both sexes were similar in the samples from the two subspecies (χ^2 tests).

As has been reported for *britannicus* (Gosler & King 1989, King & Griffiths 1994), there is significant sexual dimorphism in bib size in *hibernicus*, with males generally having larger bibs (Kruskall-Wallis test, $H_1=4.40$, $P=0.036$; Table 1). However, unlike *britannicus*, there is

TABLE 1

Mean bib size and colour scores (± 1 s.e.) for Coal Tits *Parus ater* of two subspecies. Scoring method follows King & Griffiths (1994)

		Bib size	Bib colour	n
<i>P. a. hibernicus</i>	female	2.58 \pm 0.186	0.88 \pm 0.153	20
	male	3.01 \pm 0.111	1.13 \pm 0.088	38
<i>P. a. britannicus</i>	female	2.42 \pm 0.111	0.69 \pm 0.071	54
	male	3.52 \pm 0.106	1.36 \pm 0.067	83

no significant sexual difference in bib colour ($H_1=2.49$, $P=0.115$; Table 1). Somewhat unexpectedly, it was readily apparent whilst handling specimens of *hibernicus* that their bibs tended to be smaller and paler than those of *britannicus*. These differences were only significant when comparing males of the two subspecies (bib size, $H_1=12.67$, $P<0.001$; bib colour, $H_1=4.88$, $P=0.027$), and indeed females of *hibernicus* actually tended to have larger, darker bibs than female *britannicus*, though not significantly so (Kruskall-Wallis tests; Table 1).

Thus, the blackish bib feathering is significantly less extensive and rather browner in colour in male *hibernicus* than in male *britannicus*, a subspecific character previously not reported. As no such difference exists between females, the degree of sexual dimorphism of these characters is reduced in *hibernicus*. One consequence of this is greater difficulty in sexing Irish Coal Tits on plumage (pers. obs., specimens; A. G. Gosler, wild-trapped birds). As the bib patch is frequently used for signalling in antagonistic 'head-up' posturing (Hinde 1952, pers. obs.), the biological significance of the differences in bib characters between these (and other) subspecies warrants further research.

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References:

- Cramp, S. & Perrins, C. M. (eds). 1993. *The Birds of the Western Palearctic*. Vol. VII. Oxford Univ. Press.
- Gosler, A. G. & King, J. R. 1989. A sexually dimorphic plumage character in the Coal Tit *Parus ater* with notes on the Marsh tit *Parus palustris*. *Ring. & Migr.* 10: 53–57.
- Hinde, R. A. 1952. The behaviour of the Great Tit (*Parus major*) and some related species. *Behaviour, Suppl.* 2: 1–201.
- King, J. R. & Griffiths, R. 1994. Sexual dimorphism of plumage and morphology in the Coal Tit *Parus ater*. *Bird Study* 41: 7–14.
- Ogilvie-Grant, W. R. 1910. (untitled). *Bull. Brit. Orn. Cl.* 27: 36–37.
- Peters, J. L. 1967. *Check-list of the Birds of the World*. Vol. XII. Museum of Comparative Zoology, Harvard.
- Snow, D. W. 1955. Geographical variation of the Coal Tit, *Parus ater* L. *Ardea* 43: 195–226.

- Svensson, L. 1992. *Identification Guide to European Passerines*. 4th edn. Lars Svensson, Stockholm.
- Vaurie, C. 1959. *The Birds of the Palearctic Fauna: Passeriformes*. Witherby, London.
- Yapp, W. B. 1963. Colour variation and status of *Parus ater britannicus* and *P. a. hibernicus*. *Proc. XIII Int. Orn. Congr.*: 198–201.

Address: Jon R. King, Edward Grey Institute of Field Ornithology, Department of Zoology, South Parks Road, Oxford OX1 3PS, U.K.

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Notes on the nests and eggs of some birds at the Crater Mountain Research Station, Papua New Guinea

by *Andrew L. Mack*

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The avifauna of Papuaasia is highly endemic, 54% of its species being confined to the region (Coates 1985, 1990). Many New Guinea species remain poorly known due to the rugged inaccessibility of many regions and relatively few ornithologists working there. The nest and/or eggs of roughly 50% of New Guinea's endemic bird species have not been described. Furthermore, 13% of the non-endemic species occurring in Papua New Guinea have their nests and eggs described from elsewhere, but not in Papua New Guinea (Coates 1985, 1990).

This paper provides data on the previously undescribed nests and/or eggs of ten Papuan species and observations at nests of an additional six species. Nests and eggs of another 22 species were found during the study (Appendix), but these are not described here as my observations closely matched previous accounts.

These observations were made in the proposed Crater Mountain Wildlife Management Area in the vicinity of the Crater Mountain Biological Research Station (06°43'S, 145°05'E) roughly 10 km east of Haia, Chimbu Province, Papua New Guinea. The study area is rugged hill forest spanning an altitudinal range of 850–1300 m a.s.l. in the headwaters of the Pio-Purari drainage. The vegetation is diverse with no markedly dominant species, ranging from mixed evergreen hill forest to sub-montane forest (Paijmans 1976). There are some abandoned gardens in the study area, from 10 to 50 years old, that form a mosaic of variously-aged second growth. These small plots are largely confined to level ground close to watercourses, and most forest away from the river shows little or no sign of recent human disturbance. Annual rainfall during the study period was 600–700 cm with no pronounced wet and dry season.

Fieldwork was conducted from May 1990 to March 1993 with the exceptions of November–December 1990, January–March 1993 and several 1–2 week absences. These are incidental observations made